

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Office Action February 1, 2011 has been received and its contents carefully reviewed.

Applicants amend claims 1, 2, and 4. Claims 3 and 8 are cancelled without prejudice to or disclaimer of the subject matter contained therein. Claim 7 was previously canceled. Accordingly, claims 1-2, 4-6 and 9 are currently pending. Reexamination and reconsideration of the pending claims are respectfully requested.

In the Office Action, claims 1 and 2 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,532,568 to Schutt et al. in view of U.S. Patent No. 5,000,795 to Chung et al., U.S. Patent No. 4,338,157 to Kanda (hereinafter “Kanda’157”), and U.S. Patent No. 5,560,838 to Allies et al. and further in view of U.S. Patent No. 3,869,313 to Jones et al. Claim 3-5, 8, and 9 are rejected under 35 U.S.C. §103(a) as being unpatentable over Schutt in view of Chung, U.S. Patent No. 4,886,590 to Kanda (hereinafter “Kanda’590”), Allies, and Jones.

Claims 3 and 8 are cancelled, thus, the rejection with respect to these claims is now moot. As to the remaining claims, the rejections are respectfully traversed and reconsideration is requested.

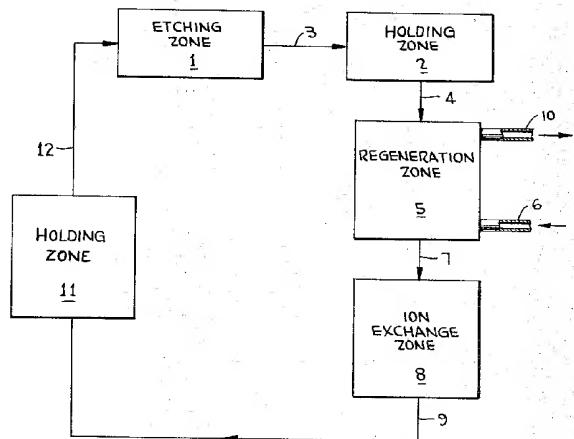
Independent claim 1 is allowable in that this claim recites a combination of elements, including, for example, “a first nitrogen gas supplying pipe for supplying a nitrogen gas to the etch bath”, “a first nitrogen gas valve at the first nitrogen gas supplying pipe”, “a rinse bath for cleaning the glass substrate that is etched in the etch bath”, “a second nitrogen gas supplying pipe for supplying the nitrogen gas to the etch bath”, “a second nitrogen gas valve at the second nitrogen gas supplying pipe”, “a dry bath for drying the glass substrate that is rinsed at the rinse bath”, “a heater within the dry bath”, “an isopropyl alcohol supplying pipe for supply an isopropyl alcohol to the dry bath”, and “the undiluted HF solution, the de-ionized water, and the separated diluted etchant are respectively supplied to the first tank from the undiluted HF solution tank, the water source, and the second tank to form the first

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Reply to Office Action dated February 1, 2011

etchant, the amount of the undiluted HF solution, the de-ionized water, and the separated diluted etchant being controlled by the control unit controlling the first tank is based on the concentration measured by the concentration measuring device.” None of the cited references, singly or in combination, teaches or suggests at least these features of the claimed embodiment.

In the claimed embodiment, the undiluted HF solution, the de-ionized water, and the separated diluted etchant are supplied to the first tank to control the concentration the mixed etchant of the undiluted HF solution, the de-ionized water, and the separated diluted etchant and then the etchant is supplied to the etch bath.



On the contrary, as shown in above figure from Schutt, the etching solution containing ferrous ions is flowing from the holding zone (2) to the holding zone (11) through the regeneration zone (5) and ion exchange zone (8) to remove the metal ion from the etching solution and then the diluted etching solution is supplied to the etching zone (1). That is, in Schutt the first tank in which the undiluted HF solution, the de-ionized water, and the separated diluted etchant are supplied to control the concentration of the etchant is not disclosed. Further, in Schutt the water source for supplying the de-ionized water to the first tank and the undiluted HF solution tank for supplying the undiluted HF solution to the first tank are also not disclosed. No cited reference cures this deficiency in Schutt.

Further, in the claimed embodiment the etching bath, the rinse bath, and the dry bath are provided to etch the glass substrate, rinse the etched glass substrate, and dry the rinsed glass substrate. On the contrary, in the cited references the dry zone is not taught or suggested.

Accordingly, Applicants respectfully submit that claim 1 and claims 2, 4-6, and 9 which depend from claim 1, are allowable over the cited references. Applicants believe the application is in condition for allowance and early, favorable action is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to Deposit Account No. 50-0911.

Dated: May 2, 2011

Respectfully submitted,

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